

## INTERNATIONAL SEARCH REPORT

In **1st** Application No  
**PCT/US2005/001025****A. CLASSIFICATION OF SUBJECT MATTER**  
**IPC 7 B25B27/00 B60J10/00**

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

**IPC 7 B65H B23P B25B B62D B60J**

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**EPO-Internal, PAJ****C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 172 313 A (TAKAHASHI, KIHEI) 30 October 1979 (1979-10-30) the whole document -----	1,2,4-7
A	US 5 735 032 A (STONE ET AL) 7 April 1998 (1998-04-07) the whole document -----	1
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 23, 10 February 2001 (2001-02-10) & JP 2001 171570 A (KANSAI PAINT CO LTD), 26 June 2001 (2001-06-26) abstract ----- -/-	1,8,9, 16-19-

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.----

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

**12 May 2005**

Date of mailing of the international search report

**25/05/2005**

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel (+31-70) 340-2040, Tx. 31 651 epo nl.  
Fax: (+31-70) 340-3016

Authorized officer

**Raven, P**

# INTERNATIONAL SEARCH REPORT

Inter Application No  
PCT/US2005/001025

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>PATENT ABSTRACTS OF JAPAN vol. 2003, no. 12, 5 December 2003 (2003-12-05) &amp; JP 2003 285970 A (KOKOKU KIKO KK), 7 October 2003 (2003-10-07) abstract</p> <p>-----</p>	<p>1,8,9, 17,18, 20,21</p>

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Int. Application No  
PCT/US2005/001025

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4172313	A	30-10-1979	JP 1192197 C	29-02-1984
			JP 53105842 A	14-09-1978
			JP 58025836 B	30-05-1983
			JP 53116142 U	14-09-1978
			JP 57060950 Y2	25-12-1982
			JP 53123233 U	30-09-1978
			JP 57025814 Y2	04-06-1982
			JP 1211804 C	12-06-1984
			JP 53114243 A	05-10-1978
			JP 58040635 B	07-09-1983
			AU 3330478 A	23-08-1979
			CA 1079039 A1	10-06-1980
			DE 2808004 A1	31-08-1978
			DE 2857191 B2	12-03-1981
			FR 2381604 A1	22-09-1978
			GB 1588213 A	15-04-1981
			HK 36786 A	30-05-1986
			IT 1107296 B	25-11-1985
			MY 23785 A	31-12-1985
			NL 7801875 A	28-08-1978
			PH 5807 U	18-07-1985
			SG 84683 G	11-01-1985
			AU 514790 B2	26-02-1981
<hr/>				
US 5735032	A	07-04-1998	NONE	
<hr/>				
JP 2001171570	A	26-06-2001	CA 2385753 A1	12-04-2001
			WO 0125077 A1	12-04-2001
			US 6748993 B1	15-06-2004
<hr/>				
JP 2003285970	A	07-10-2003	NONE	
<hr/>				

## INTERNATIONAL SEARCH REPORT

In 1st Application No  
PCT/US2005/001025A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 B25B27/00 B60J10/00

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 B65H B23P B25B B62D B60J

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 4 172 313 A (TAKAHASHI, KIHEI) 30 October 1979 (1979-10-30) the whole document -----	1,2,4-7
A	US 5 735 032 A (STONE ET AL) 7 April 1998 (1998-04-07) the whole document -----	1
A	PATENT ABSTRACTS OF JAPAN vol. 2000, no. 23, 10 February 2001 (2001-02-10) & JP 2001 171570 A (KANSAI PAINT CO LTD), 26 June 2001 (2001-06-26) abstract ----- -/-	1,8,9, 16-19-

☒ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.----

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

12 May 2005

Date of mailing of the international search report

25/05/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Raven, P

# INTERNATIONAL SEARCH REPORT

Inter

Application No

PCT/US2005/001025

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>PATENT ABSTRACTS OF JAPAN  vol. 2003, no. 12,  5 December 2003 (2003-12-05)  &amp; JP 2003 285970 A (KOKOKU KIKO KK),  7 October 2003 (2003-10-07)  abstract</p> <p>-----</p>	<p>1,8,9,  17,18,  20,21</p>

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Int. Application No

PCT/US2005/001025

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4172313	A	30-10-1979	JP 1192197 C	29-02-1984
			JP 53105842 A	14-09-1978
			JP 58025836 B	30-05-1983
			JP 53116142 U	14-09-1978
			JP 57060950 Y2	25-12-1982
			JP 53123233 U	30-09-1978
			JP 57025814 Y2	04-06-1982
			JP 1211804 C	12-06-1984
			JP 53114243 A	05-10-1978
			JP 58040635 B	07-09-1983
			AU 3330478 A	23-08-1979
			CA 1079039 A1	10-06-1980
			DE 2808004 A1	31-08-1978
			DE 2857191 B2	12-03-1981
			FR 2381604 A1	22-09-1978
			GB 1588213 A	15-04-1981
			HK 36786 A	30-05-1986
			IT 1107296 B	25-11-1985
			MY 23785 A	31-12-1985
			NL 7801875 A	28-08-1978
			PH 5807 U	18-07-1985
			SG 84683 G	11-01-1985
			AU 514790 B2	26-02-1981
<hr/>				
US 5735032	A	07-04-1998	NONE	
<hr/>				
JP 2001171570	A	26-06-2001	CA 2385753 A1	12-04-2001
			WO 0125077 A1	12-04-2001
			US 6748993 B1	15-06-2004
<hr/>				
JP 2003285970	A	07-10-2003	NONE	
<hr/>				